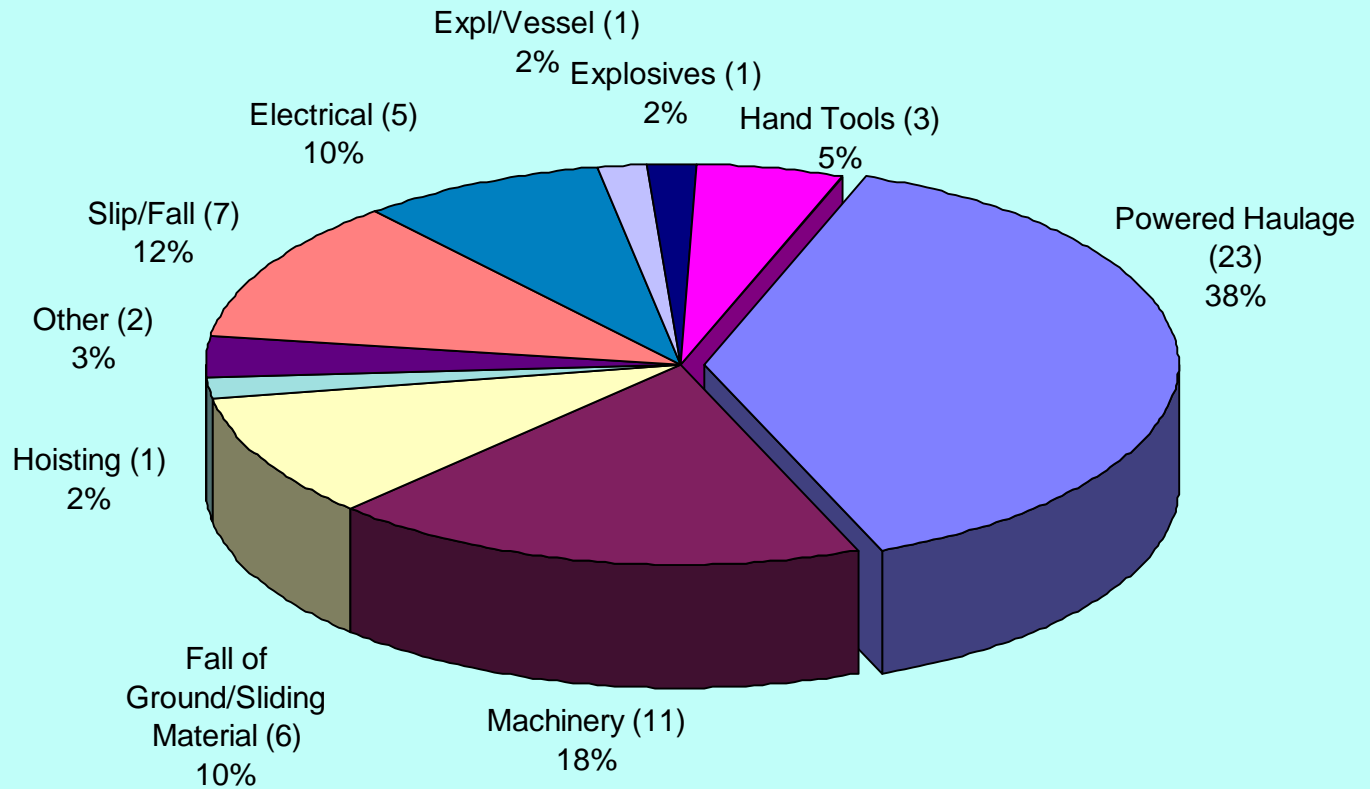


# 1997 Fatal Accident Review

Metal Nonmetal

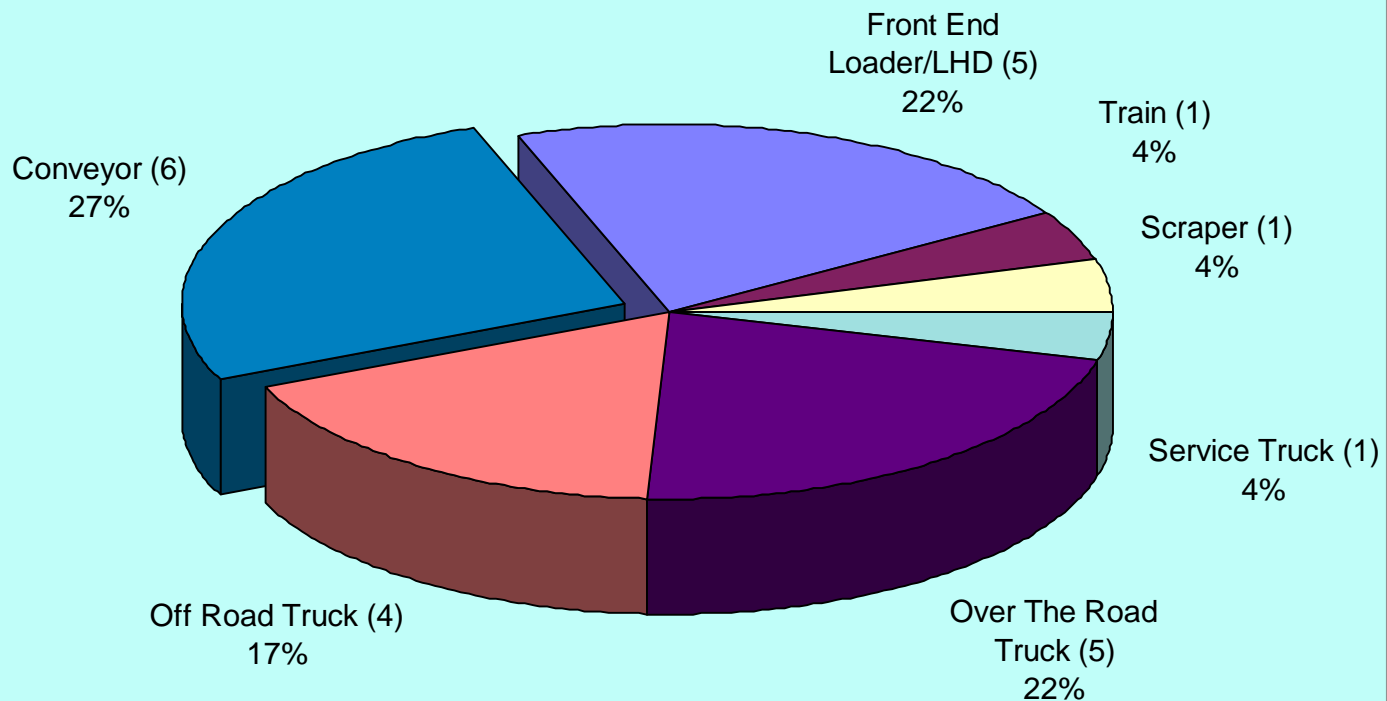
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## 1997 MNM Fatal's by Accident Classification



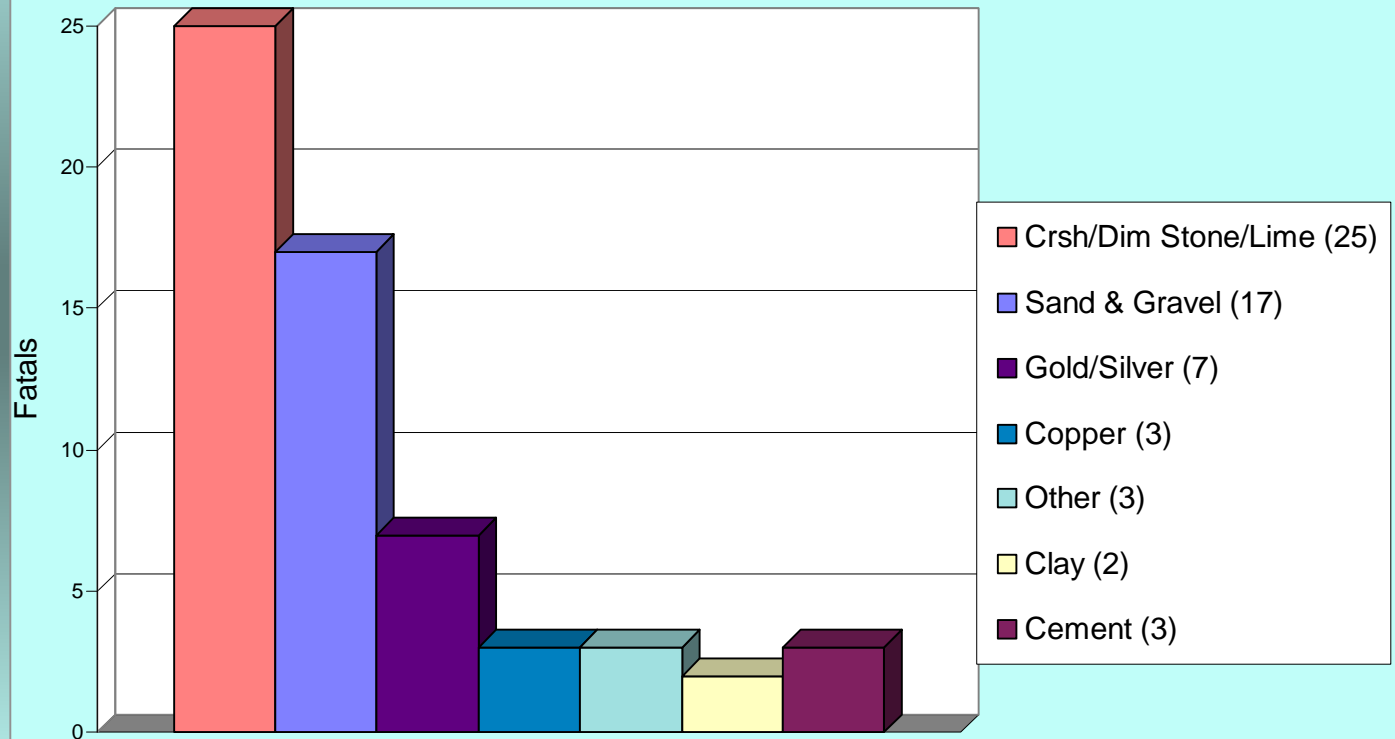
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## 1997 Powered Haulage Fatalities by Equipment Type



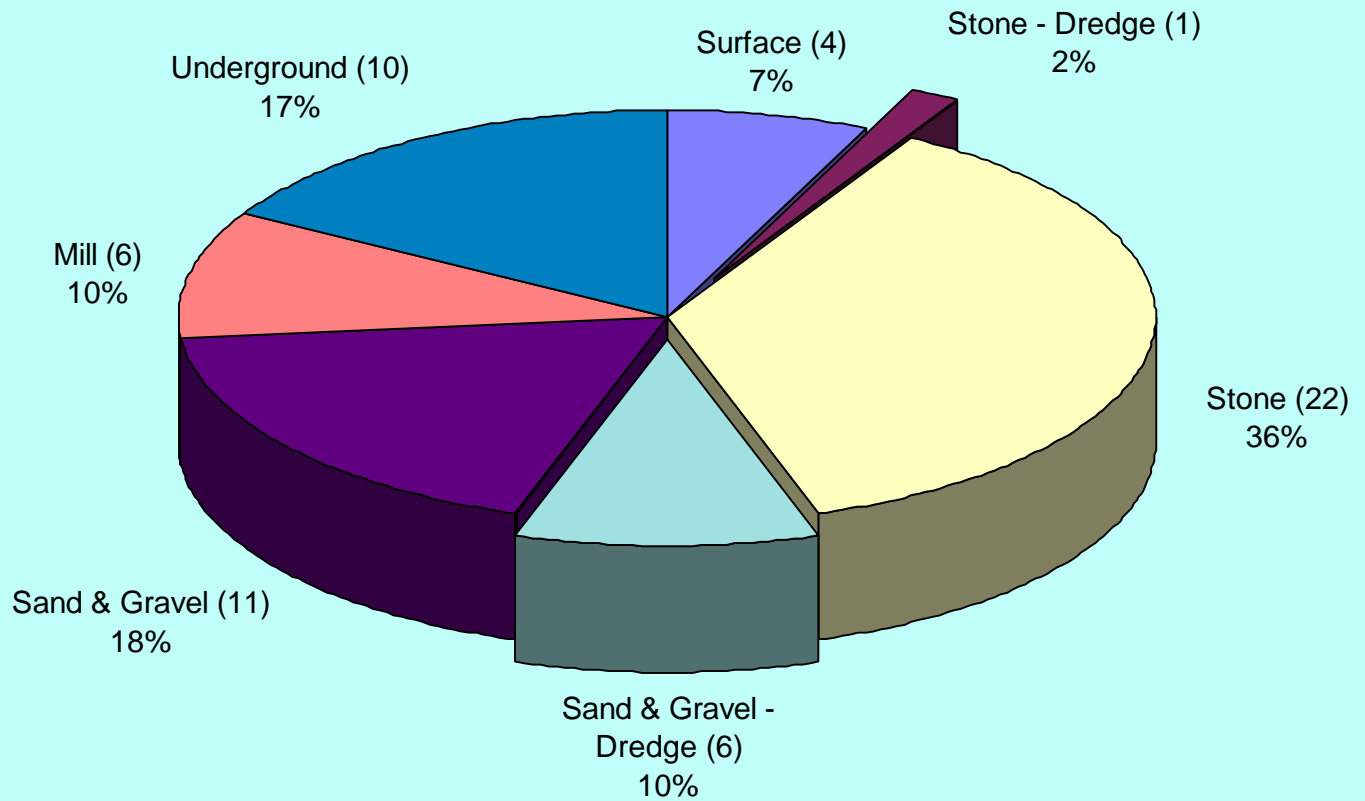
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## 1997 Fatalities by Commodity



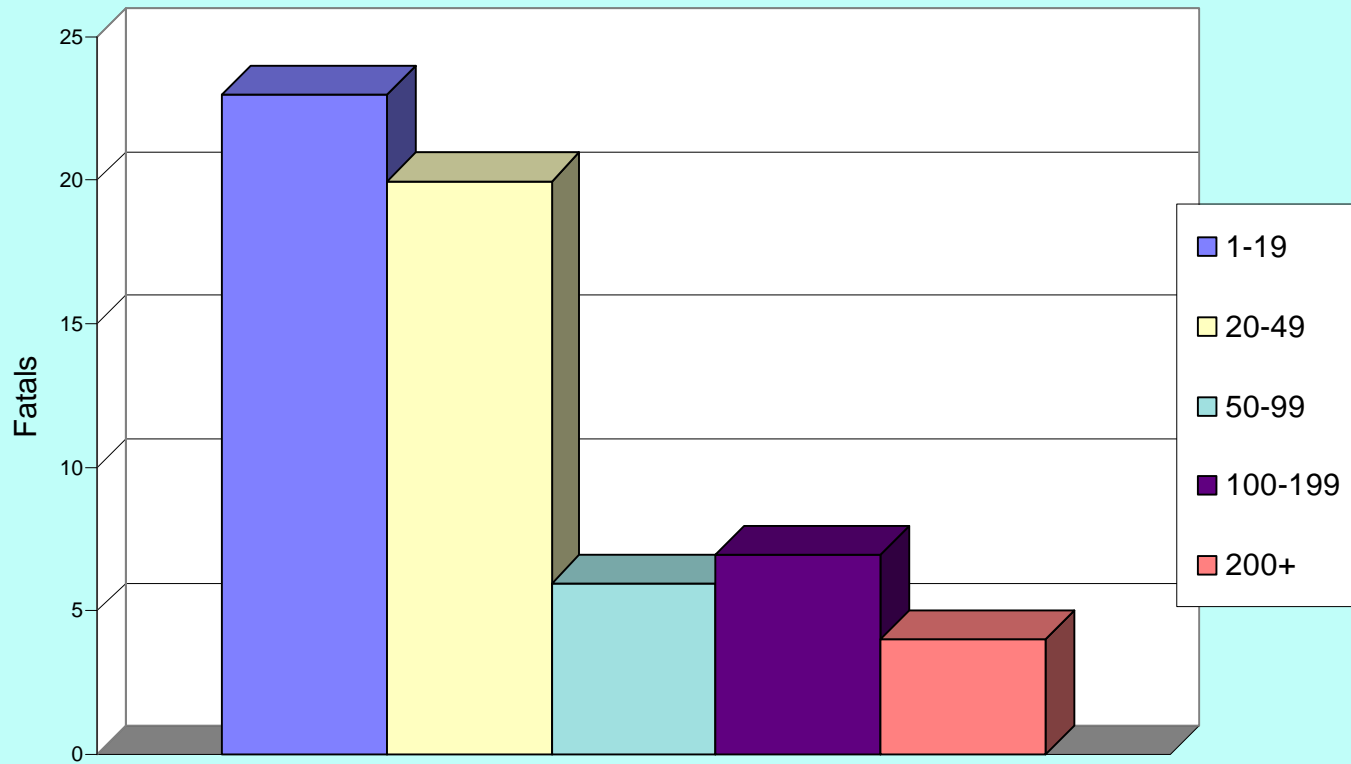
Preliminary 1/6/98

## 1997 MNM Fatalities by Mine Type



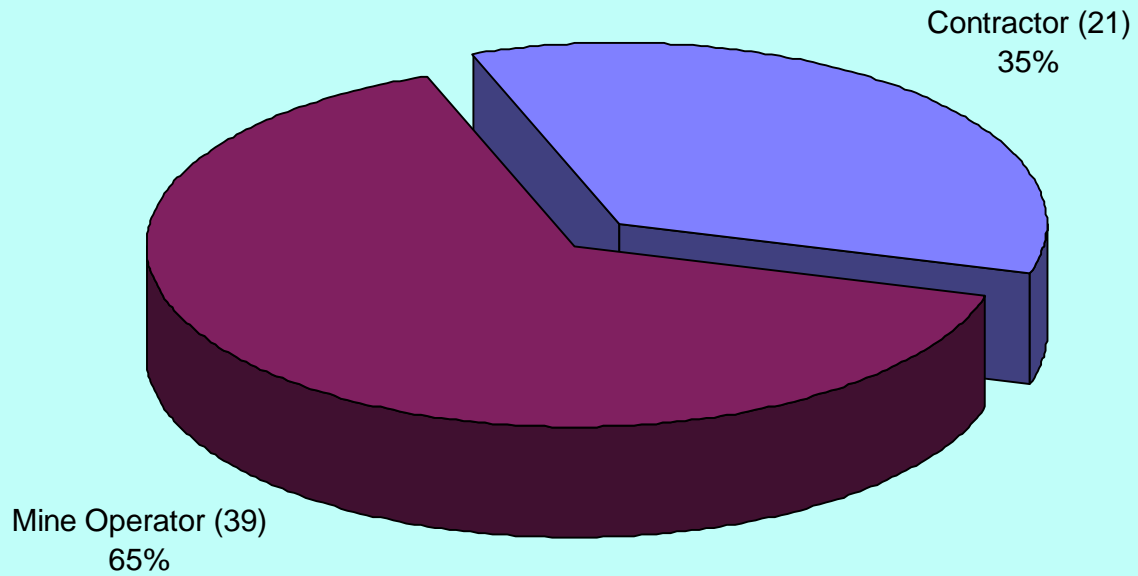
Preliminary 1/6/98

## 1997 MNM Fatalities by Mine Size



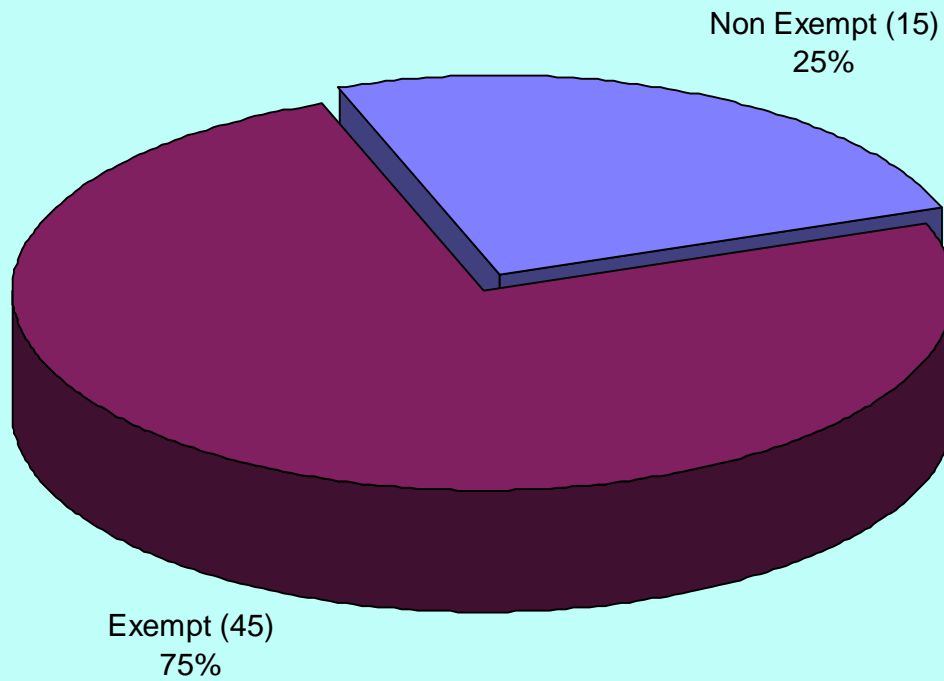
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## 1997 MNM Fatalities: Mine Operator v. Contractor



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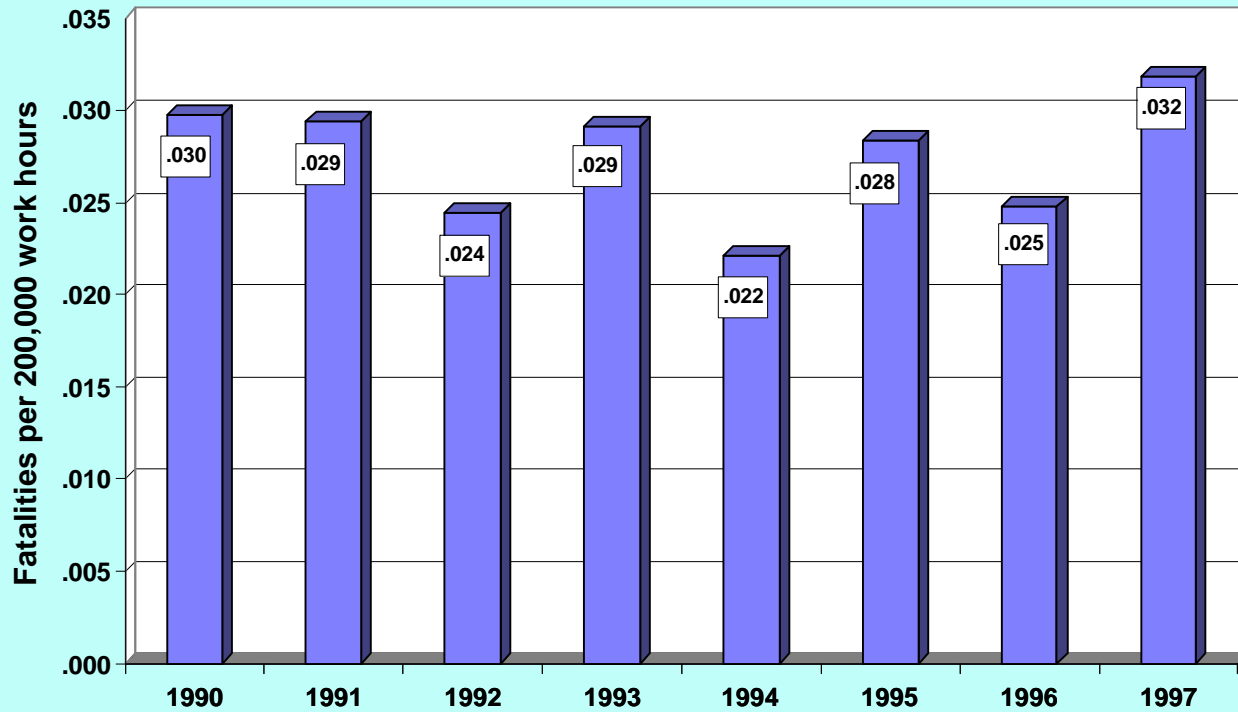
## 1997 Part 48 Enforcement



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## Metal and Nonmetal Mining Fatal Injury Incidence Rates

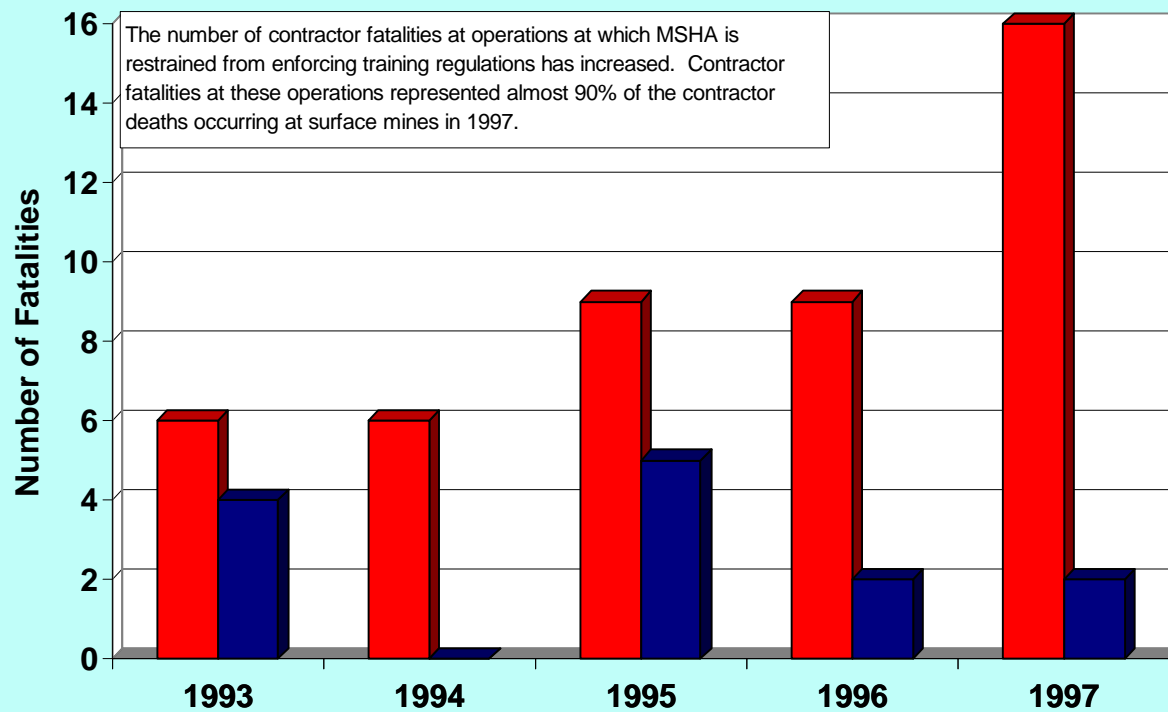


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## Contractor Fatalities at Surface Mining Operations

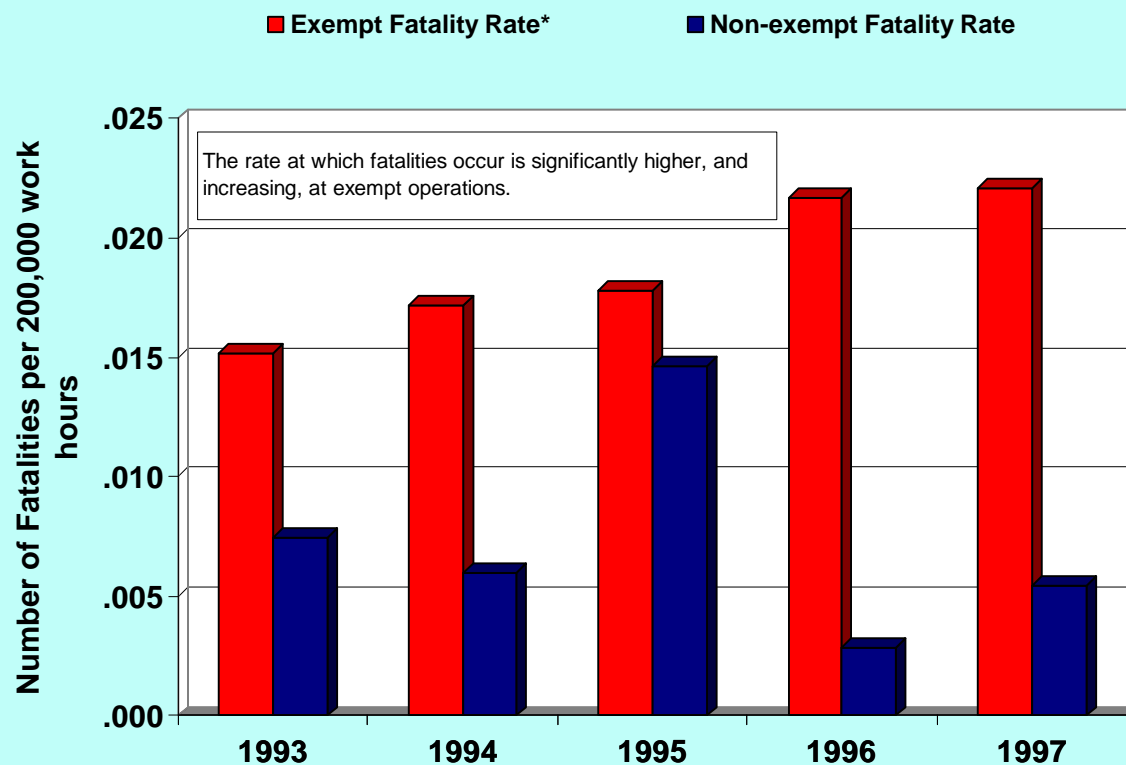
■ Exempt Operations

■ Non-exempt Operations



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## Fatal Injury Incidence Rate - Surface Mining Operations



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# 1997 Powered Haulage (23)

- 6 conveyors: four tailpulley; one return idler entanglement; and one entrapped in material storage bin
- 5 over-the-road trucks: two victims run over; one went off roadway, and; two collisions with trains at railroad and haul road intersections
- 4 off-road truck: two off-road trucks over traveled roadways; one struck rock berm and victim received head injury; and one fell from truck and was run over during pre-operation inspection
- 3 FEL's: stalled on grade while transporting welder and victim jumped or fell; one over traveled roadway, and; one pinned while connecting fork-lift attachment to skid-steer loader
- 2 LHD's: one ran over haul truck driver; and one pinned by unblocked loader when servicing on an incline
- 1 Pick-up truck over traveled roadway servicing on incline
- 1 scraper over traveled stockpile and rolled over
- 1 railroad locomotive ran over victim

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# 1997 - Machinery (10)

- 2 Dragline: bank sloughed and dragline with equipment operator and his oiler fell into 60 foot of water
- 2 Down hole drills: one drilled into underground workings from the surface and ground collapsed, and; one fell from high wall when changing steel at the edge of wall
- 2 Boom trucks: wheel and mounted tires fell from lift attachments while changing tires on heavy mobile equipment
- 1 Overhead Bridge Crane Hoist: one mechanic caught between hoist drum and clam shell closing line drum
- 1 Rail Road Car: working underneath car lifted by 100 ton crane and then improperly blocked
- 1 Blade Mill and 1 Sand Classifier: working on changing paddles tips and greasing without locking out

# Slip or Fall of Person (7)

- Working to dismantle Kiln and fell, 30 feet to floor, through opening where handrail had been removed
- Fell off improperly installed access ladder and was run over by underground haulage train
- Fell about 12 feet from top bulk tank truck trailer
- Fell 13 feet down an elevator shaft in a mill building
- Fell 10 feet from steel beam located above a rock crusher
- Fell off of dredge into the Mississippi River
- Fell into crusher opening

# Fall of Ground and Falling/Sliding Material (7)

- operating single boom jumbo drill when a massive roof fall occurred and collapsed canopy
- hand scaling hanging wall when a slab of rock fell
- operating air-track drill when ground fell from pillar
- 50 foot high wall face fell on excavator while clearing rock and overburden near the high wall face
- truck driver got between tailgate of truck and steepened stockpile just before the stockpile sougled
- unsecured hopper barrier wall fell on victim while moving crusher
- ledgeman hit by 17,000 lb. slab of granite

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# Electrical (5)

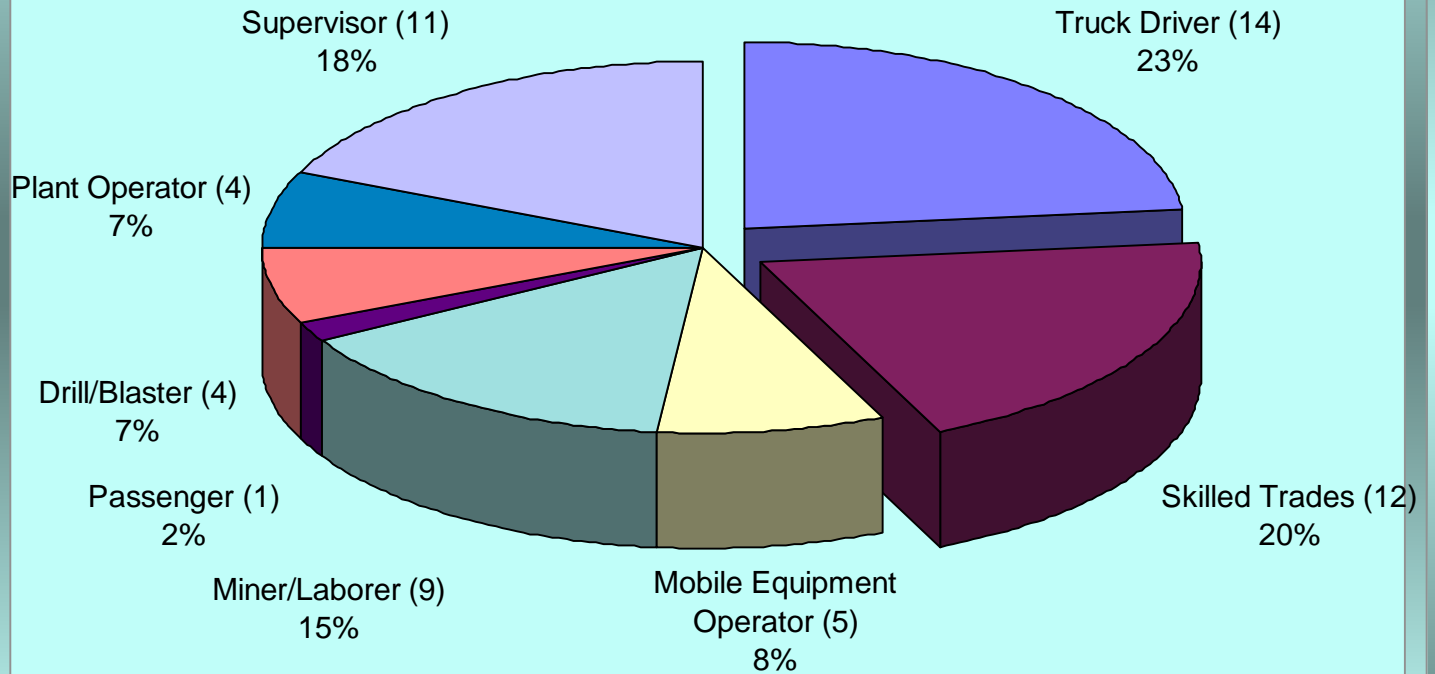
- cleaning energized 4160/480 volt transformer compartment
- checking water pump, which had reverse polarity on extension cord to pump, causing the motor housing to be energized
- while testing with meter, contacted improperly mounted circuit breaker hardware and an energized phase terminal
- contacted hand-held wand on a high-pressure washer, which had one phase wired directly to ground
- raised bed of over-the-road haul truck contacted 26kva power line and passenger was electrocuted while attempting to get out of truck



# 1997 Other Accident Classifications (7)

- Exploding Vessel: welding on dredge flotation tank
- Other (Drowning): 2 fell from boat: one used to access floating pump and one used to access dredge
- Hoisting: hoist bucket fell through galloway work deck
- Explosives: attempting to dislodge hung explosives by tamping them hard
- Handtools:
  - com-a-long device failed which was supporting a front-end-loader fender during a tire change
  - pipe fell from truck trailer after driver used knife to cut loading strap
  - pinned by FEL pivot arm while disconnecting hydraulic line with wrench

## 1997 Fatalities by Occupation

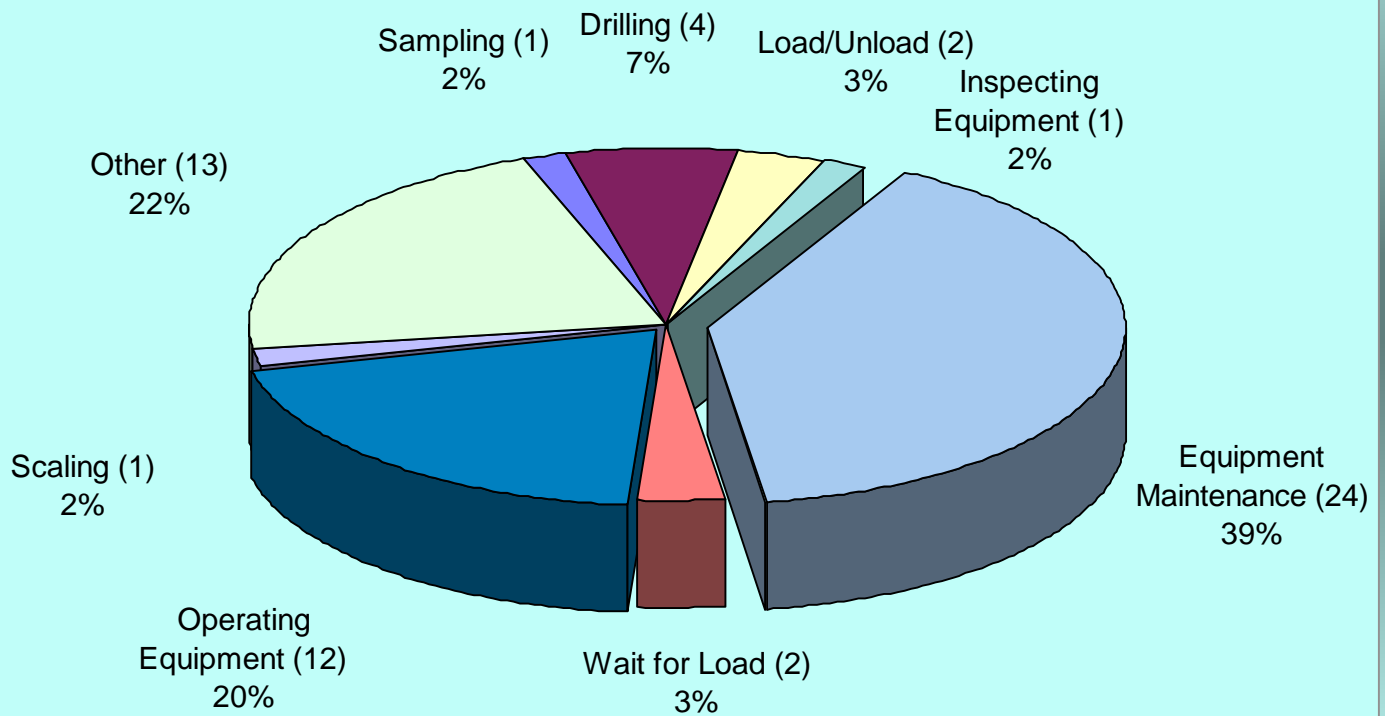


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# Occupations Most at Risk

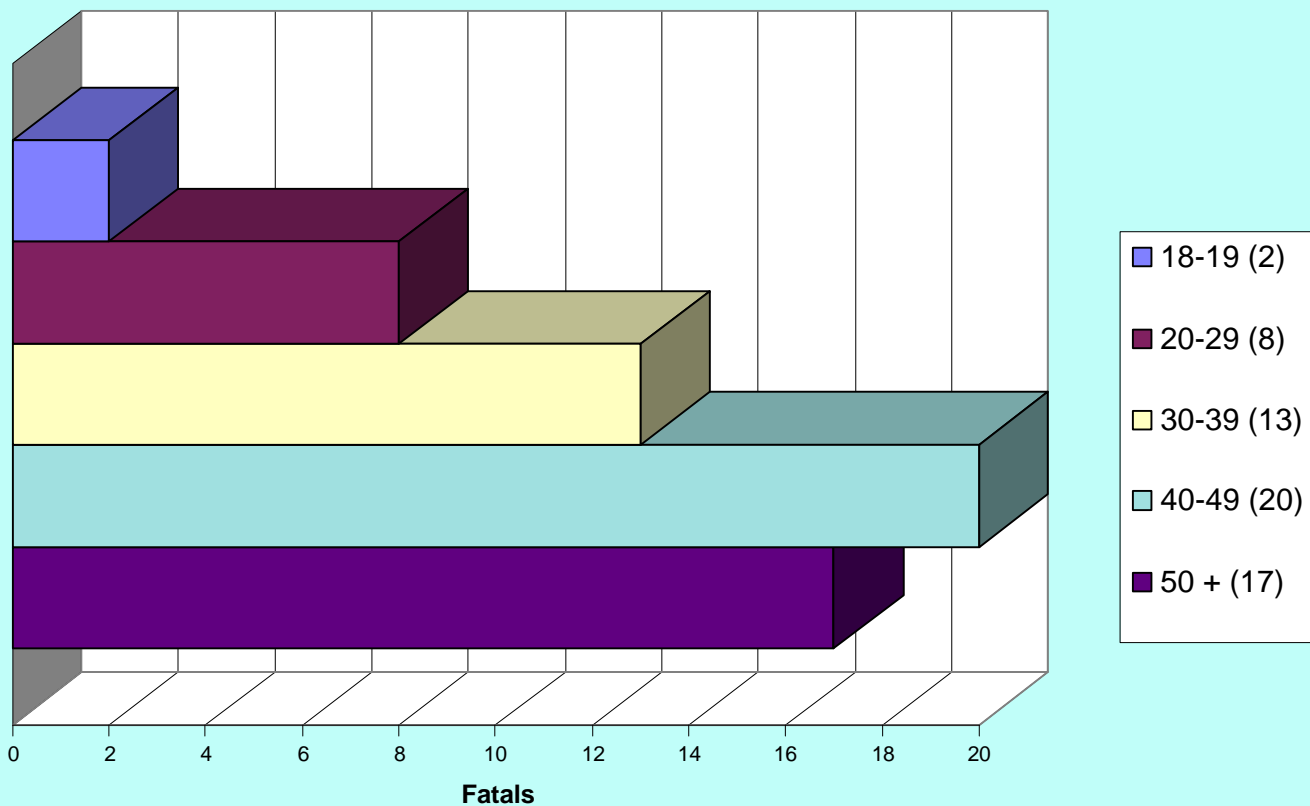
- Supervisors: Electrical and other First-Line supervisors
- Mobile Equipment Operators: Front-End-Loader, Cranes, Dozer, and Skid-Steer Loader
- Miners: Dredge Operators Driller, Blaster, and Laborer
- Skilled Trades; Mechanics, Electricians, and Welders
- Truck Drivers: Commercial Contract Haulers, Off-Road Trucks, and Delivery

## 1997 MNM Fatalis by Work Activity



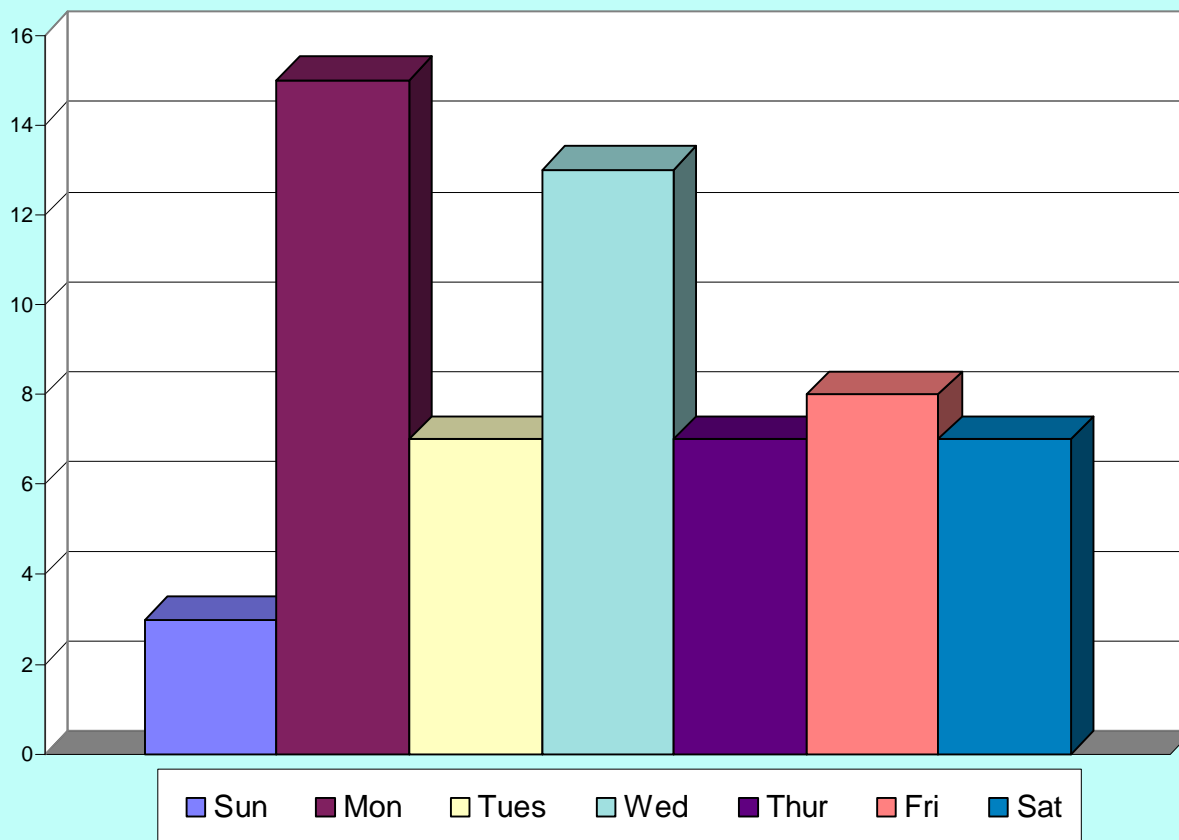
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## 1997 Fatalities by Age Group



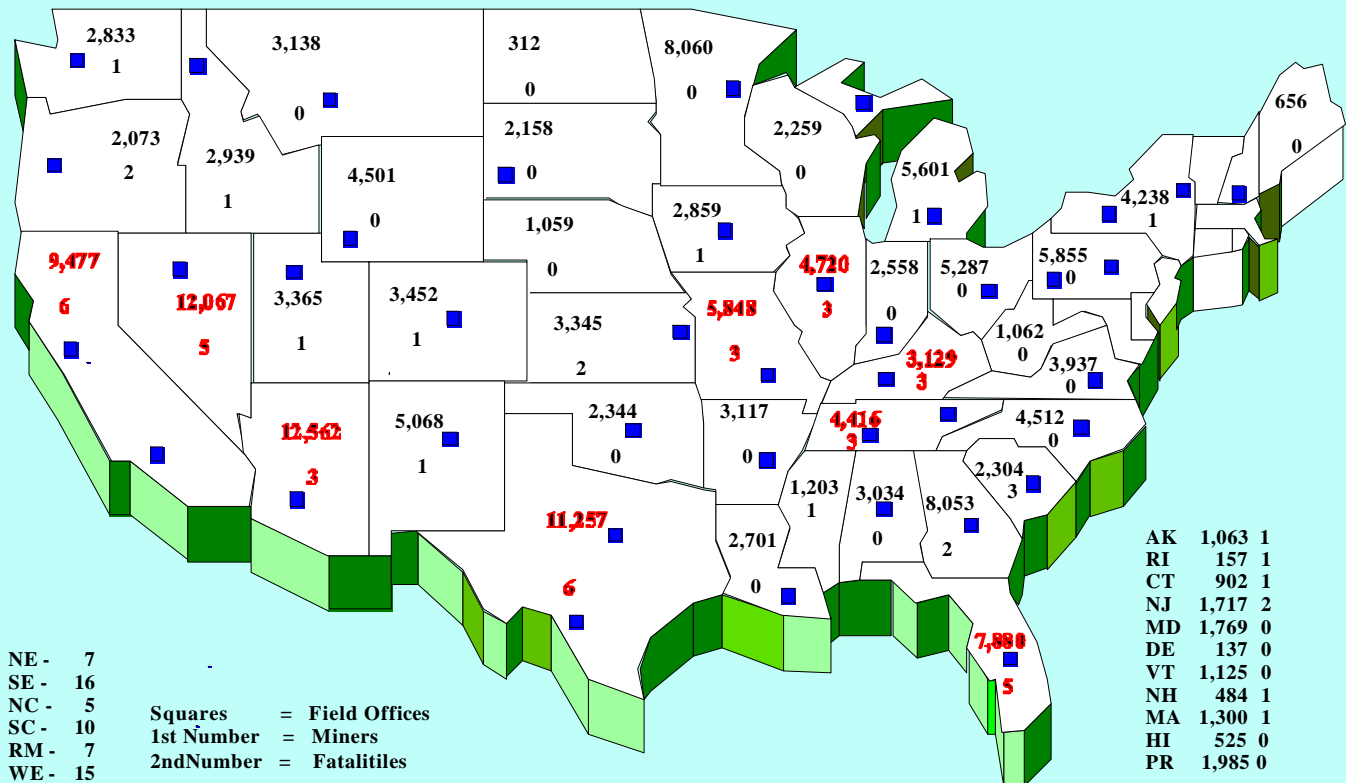
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## 1997 MNM Fatalities by Day of Week

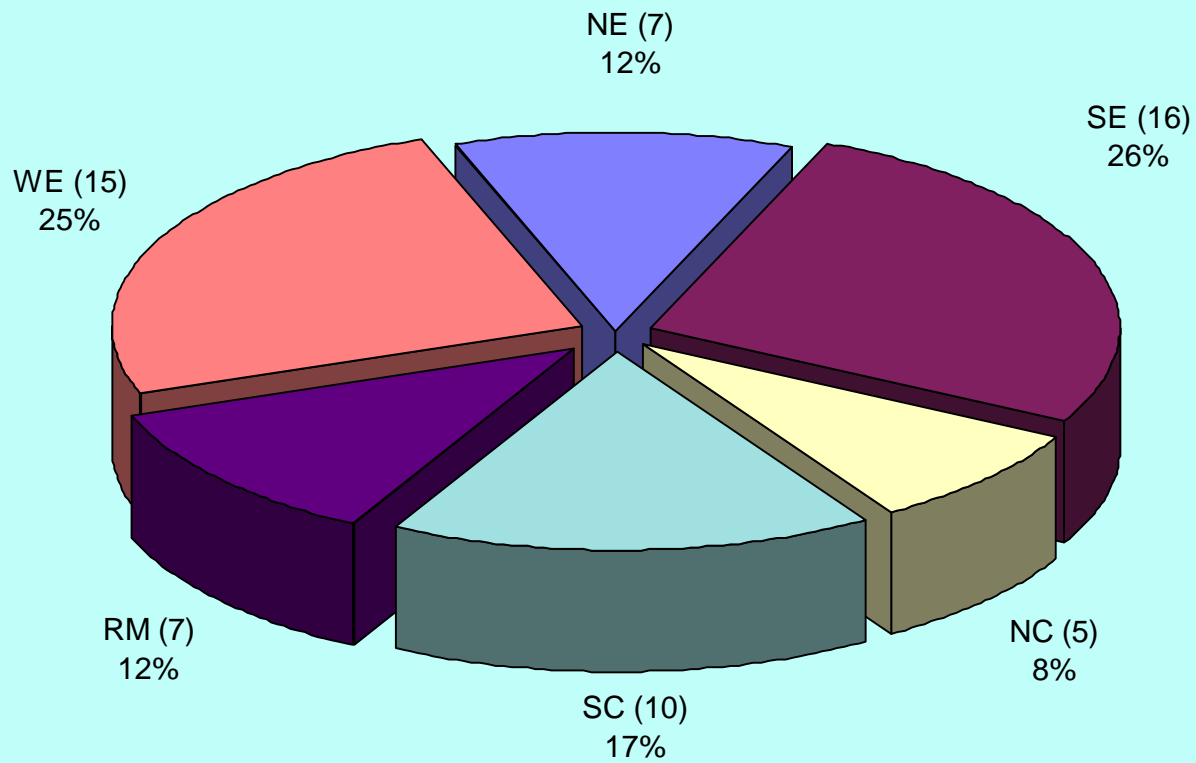


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# 1997 Metal and Nonmetal Fatalities/Miners By State



## 1997 MNM Fatalities by District



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# Factors Common in Fatalities

- no training or inadequate
- inadequate workplace and pre-operational equipment examinations
- equipment not maintained properly
- inadequate lock-out/tag-out procedures
- use of equipment beyond design intended by manufacture
- ineffective communications
- failure to use life preserver
- failure to use safety belt and lanyards
- failure to wear seat belts
- accepted work practice
- unsecured and unblocked equipment
- congested work areas (particularly traffic congestion)
- working in an unsafe location
- failure to support or take down loose ground

# Fatal Accident Hazards Cited

- no training or inadequate
- unguarded moving machinery pinch points
- failure to conduct pre-operational equipment checks
- using equipment beyond the design intended by the manufacture
- working on equipment before locking-out and tagging-out
- failure to wear life preserver
- working on equipment before properly blocking or securing it from movement
- failure to wear seat belts
- failure to use safety belts and lanyards
- not taking down or supporting loose ground
- not maintaining control of mobile equipment
- using defective equipment

# Discussion Topics

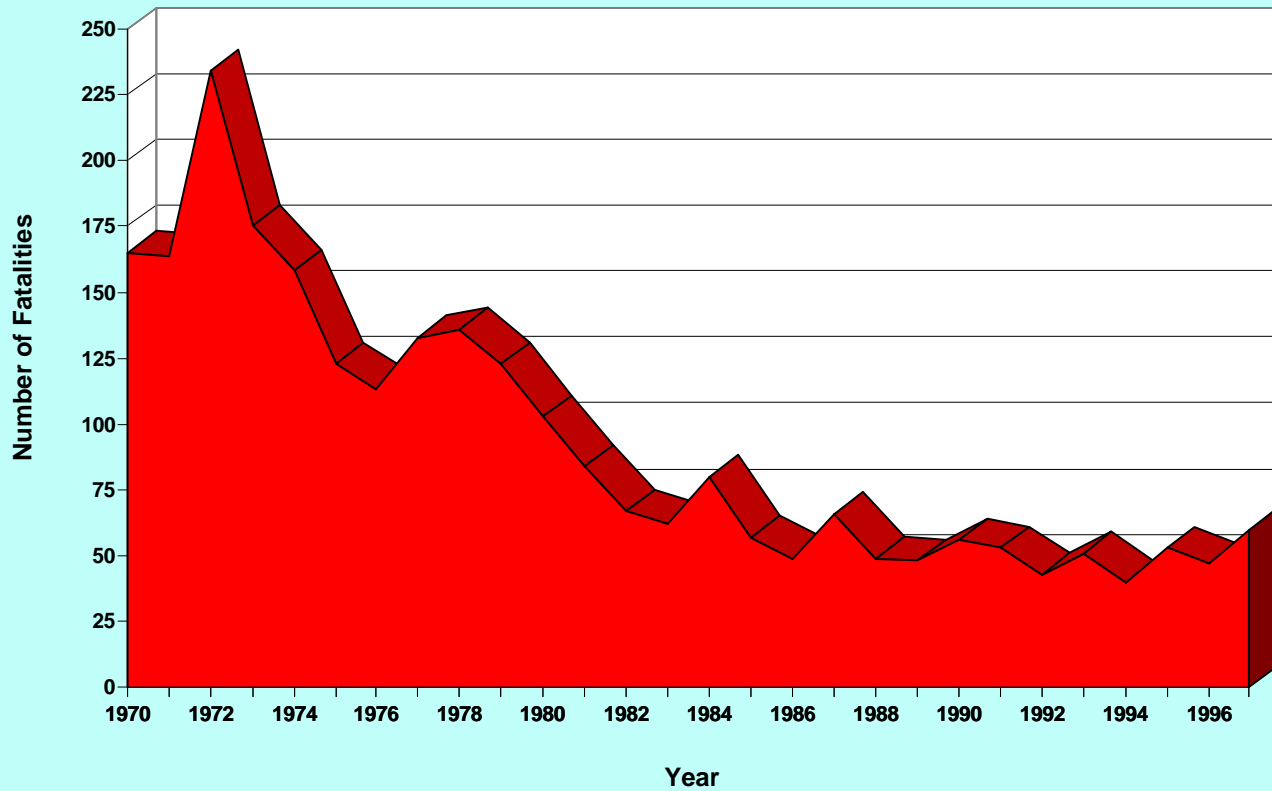
## ● Powered Haulage

- pre-operational equipment inspections
- operation of equipment
- pedestrian safety
- maintenance practices
- work elements within job classification
- task training
- use of manufacture operating manuals
- adequacy of machine guards

## ● Training

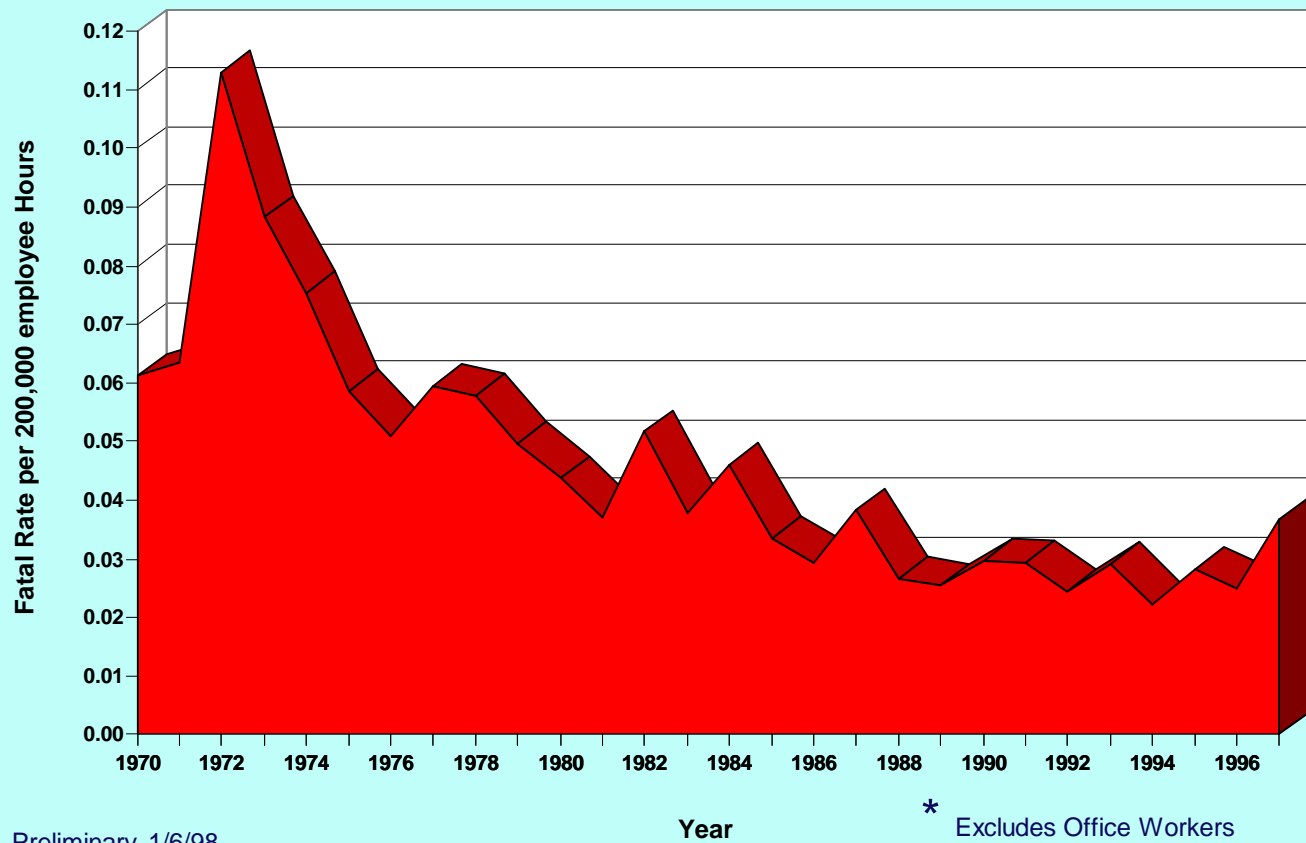
- supervisors
- equipment operators
- truck drivers
- maintenance personnel
- work area and equipment inspection procedures
- specific task training
- hazard recognition for all occupations
- commercial contract haul truck drivers
- contractors

## Metal and Nonmetal Mining Fatalities 1970 - 1997



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## Metal and Nonmetal Mining Fatality Rates 1970 - 1997\*



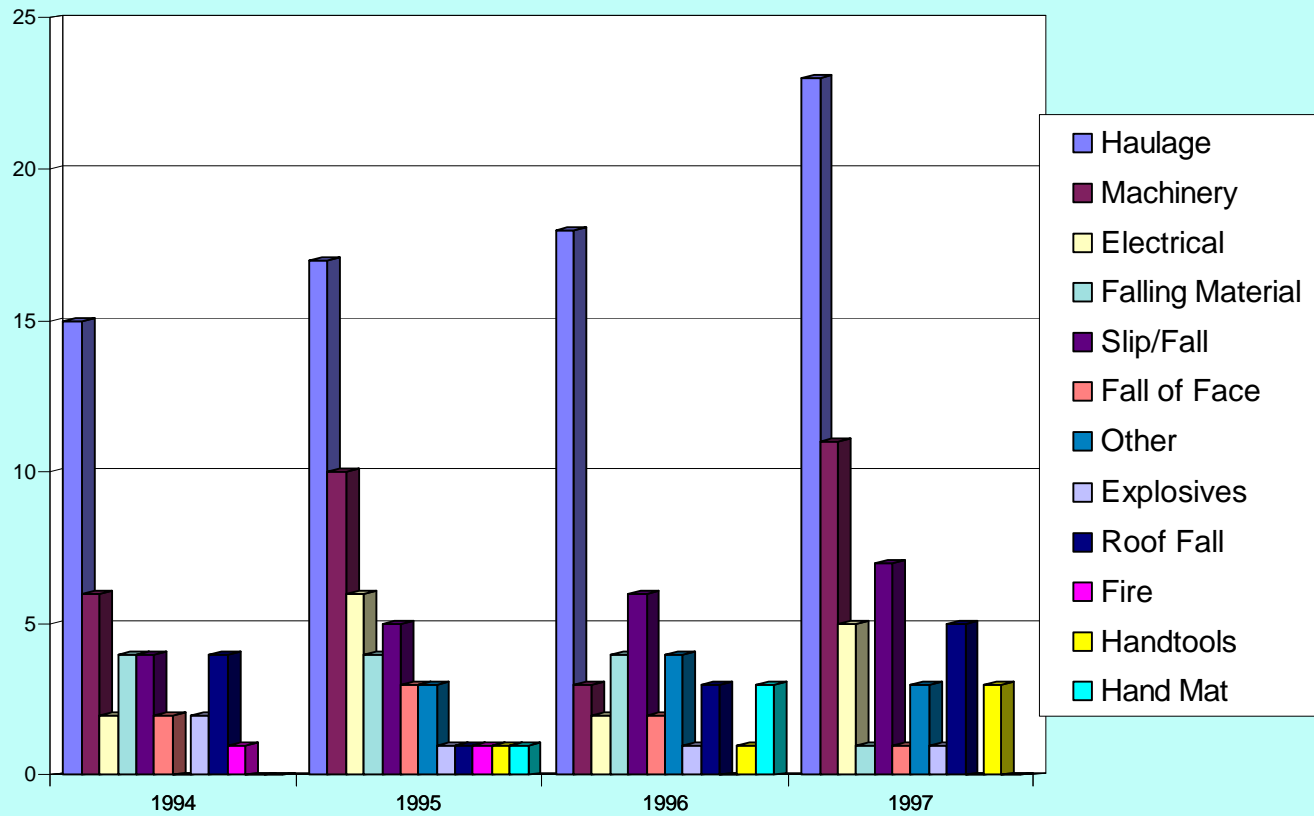
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\* Excludes Office Workers

# 1994-1997 Fatality Summary

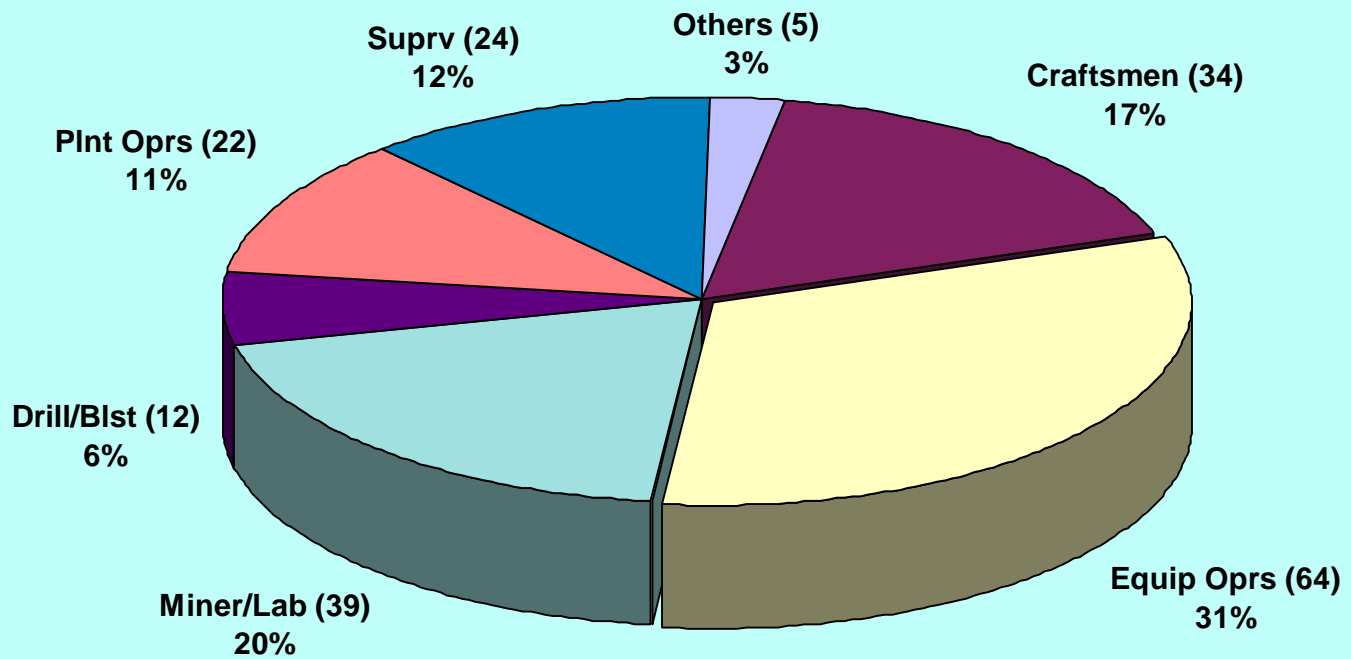
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## 1994-97 Fatal Accident Classifications



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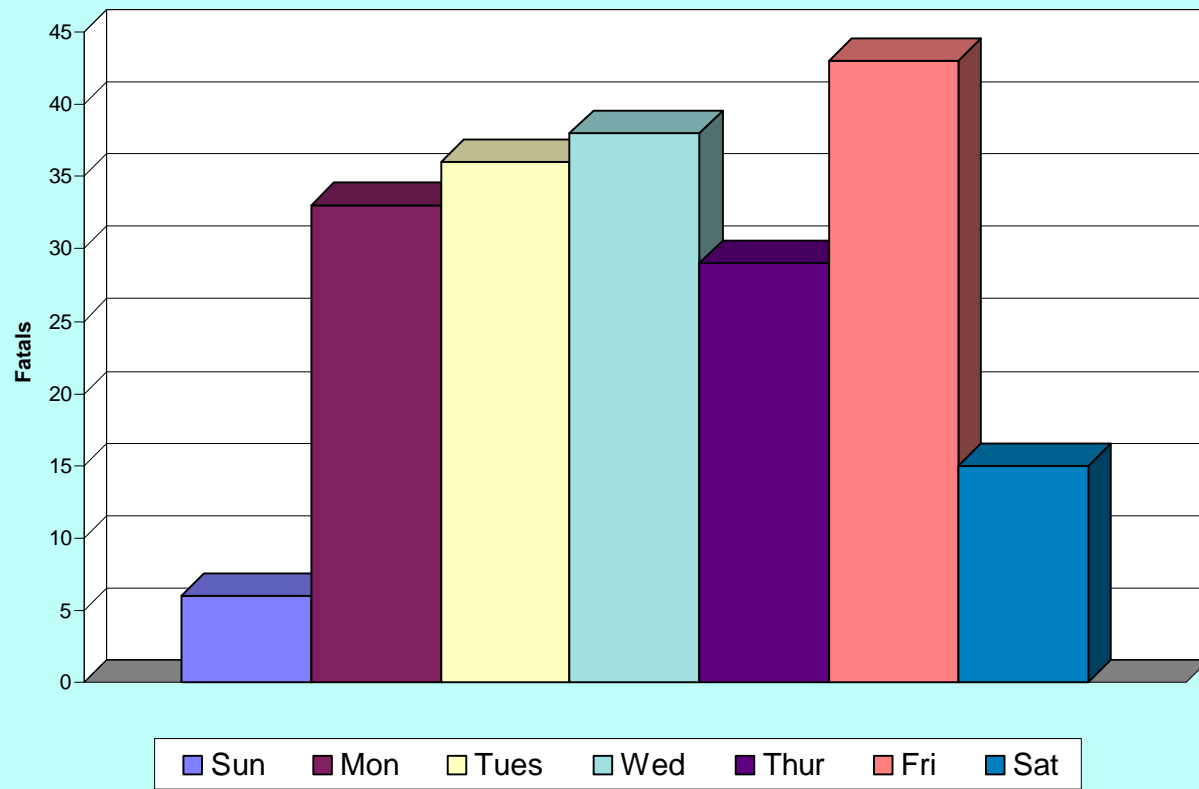
## 1994-1997 Fatalals by Occupation



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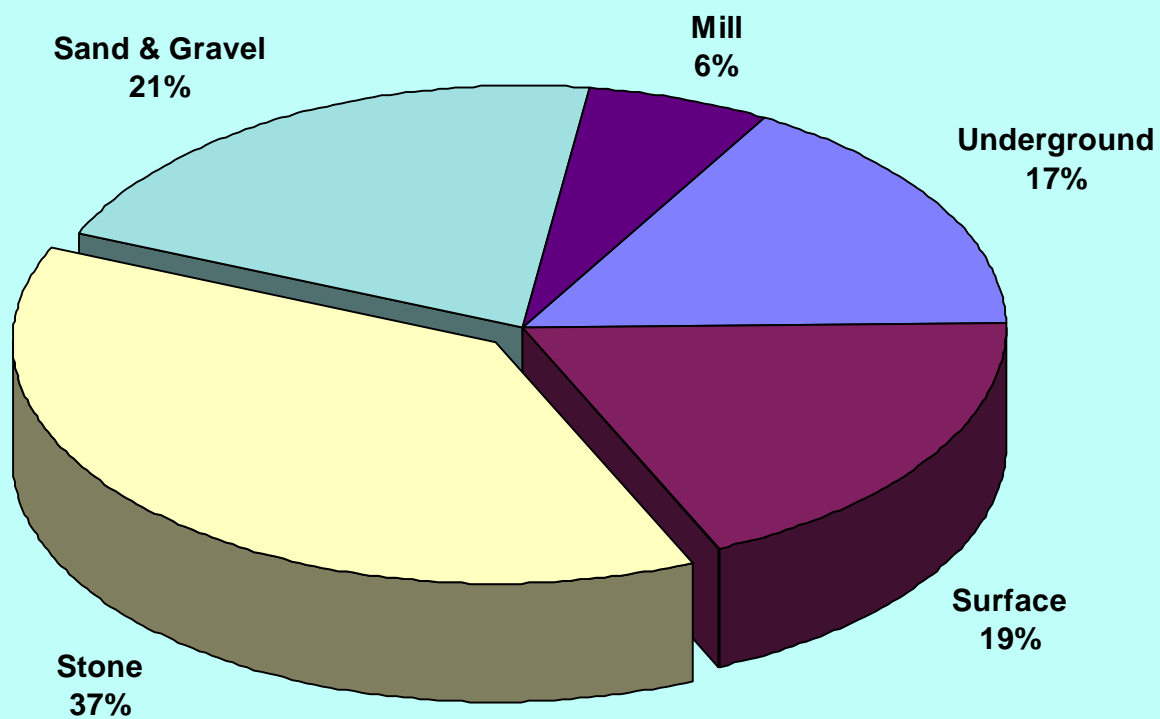


## 1994-97 Fatalities by Day of Week



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## 1994-1997 Fatalities by Mine Type



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1994-1997 Fataals by Commodity

